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The Small and Medium Enterprise (SME) Promotion Website of Pedado Village

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Abstract. Pedado Village has several SMEs that are not yet well known by the wider community. These SMEs produce various products such as flannel handicrafts, Palembang mattress, and oyster mushrooms. Even the marketing of this product is still done manually, that is, the buyer comes directly to the seller to buy the product. This study aimed to build a website that can promote Pedado Village in general and the products produced by SMEs in particular. The website could also be used for online buying and selling transactions. The method used in website development is the Spiral method. The research results were a website that could be used to display information in the form of Pedado Village profile, SMEs and activities in Pedado Village, products produced by these SMEs, and the purchase of these products online. The use of the Spiral method was limited to the initial evaluation stage, which was testing the system using the blackbox method, with the results of the website could be used according to its function.

Keywords: promotion, SME results, Spiral method, e-commerce

1. Introduction

Pedado Village is a village located on the banks of the Pedado river, Kertapati sub-district, Palembang city, so it is often called by the surrounding community as Kampung Pedado. The main livelihood of Pedado Village people is farming, and along with the development that has been pioneered by Rumah Belajar Ceria (RBC) in the cultivation of oyster mushrooms, the community began to participate in collective or personal mushroom cultivation activities.

In addition to mushroom cultivation, the people of Pedado Village are also famous as centers for flannel handicrafts and craft mattress from Palembang. These products produced by Small and Medium Enterprises (SMEs) in Pedado Village are still marketed directly, either by supplying corporate needs or individuals who sell these products, as well as selling products through face-to-face, i.e. buyers come directly to the seller (SME) to buy goods.

The development of Internet technology, especially the web, allows the presentation of information in the form of text, images, videos, and its combinations can be done easily. The information presented also varies according to the purpose of a website created. In this study, the website created is intended as a promotional media that can display information not only about the profile of Pedado Village, but also contains the existing SMEs in Pedado Village, the products produced by these SMEs, and processing buying and selling transactions that are done by its users.

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Several studies have examined the use of technology as a strategy to increase the promotion and income of SMEs [1][2][3], and in this study proposed the use of the website as one of these strategies. The website development methodology used is the Spiral method. Spiral was introduced by modifying the waterfall model that allows several iterations spiraled out from small beginnings [4]. The spiral method is similar to the incremental model only more emphasis on risk analysis [5]. The choice of the Spiral method is that there are several advantages written in the previous research [6][7][8], and the author's consideration is in the development of the system which is located at the stage in the Spiral method itself. The stage is an evaluation that allows changing needs to be handled quickly so that the website produced is in accordance with the needs of its users, which in this case are Pedado Village communities who are represented by administrators and buyers of SME products.

The writing structure in this manuscript consists of several parts. Section 2 contains other similar studies, section 3 contains the research methodology used, section 4 contains the discussion, and the last section contains conclusions and suggestions.

2. Related Works

Several studies regarding the use of websites as a means of promoting the products of SMEs have been conducted. The first research was conducted by Sadgotra and Saputra by building an online marketplace for SMEs in Purworejo District [9]. Nevertheless, the results of this study are only limited to displaying information about the profile of SMEs and the products they produce. The next study was the development of a website-based SME Information System in Sumber Jaya Village by Jonathan and Lestari [10]. The results of this study are information systems that display products produced by SMEs in Sumber Jaya Village, along with articles on products produced.

Subsequent research not only uses websites to promote SME results but also provides online trading features on promotional websites. The research conducted by Dewi and Garside uses the website as a media for promotion and sales in the abon **home industry in Malang [11] . The results of** this study are the existence of e-commerce websites created with opencart CMS with menus in the form of home, official certificates, product categories, about us, catfish articles, and how to subscribe. Other studies improved the competitiveness of SMEs by building electronic commerce that could be used to market and sell products produced by SMEs [12][13]. Both of these studies used the waterfall method with the research**'** result was an e-commerce system that can be used to market and selling SMEs**'** products.

The difference of the above research with this research lay in the use of the system development methodology which in this study was using the Spiral method. In addition, the concept of the promotional website that would be built did not only focus on the marketing and sales of its SME products but also displays information about Pedado Village or other activities in Pedado Village.

3. Research Methodology

The research methodology used is in accordance with the chosen system development method, namely the Spiral method. The stages carried out in th**is study are [14] :**

3.1. Identification

At this stage, business needs are collected as a basis for website development. Problem identification is done using observation, documentation, and interviews with users of promotional websites.

3.2. Planning

At this stage, the design is carried out in the form of a conceptual design of the website to be built. To facilitate website development, the approach used in its development is object oriented, so that the design produced at this design stage is written in the form of Unified Modeling Language (UML).

3.3. Development

At this stage, the website is made using the basic design that has been made in the previous stage. In other words, at this stage, the implementation of the design has been made into the form of software using the program language coding required.

3.4. Evaluation and risk analysis

At this stage, the website will be tested, and risk analysis and evaluation results will be made to the consumer at the end of the Spiral iteration method. Based on this evaluation, feedback can be obtained from users regarding the website that has been built. The results of this feedback can later be used as a basis for website development in the next iteration.

4. Discussion

4.1. Identification

At this stage, the collection of business needs is carried out in the form of users who will use the website, data that will be processed by the website, what information the website will display, as well as user access and limitations to all features of the website. To illustrate the results of this needs analysis, a use case diagram is created that can be used to model system requirements that are functional [15].

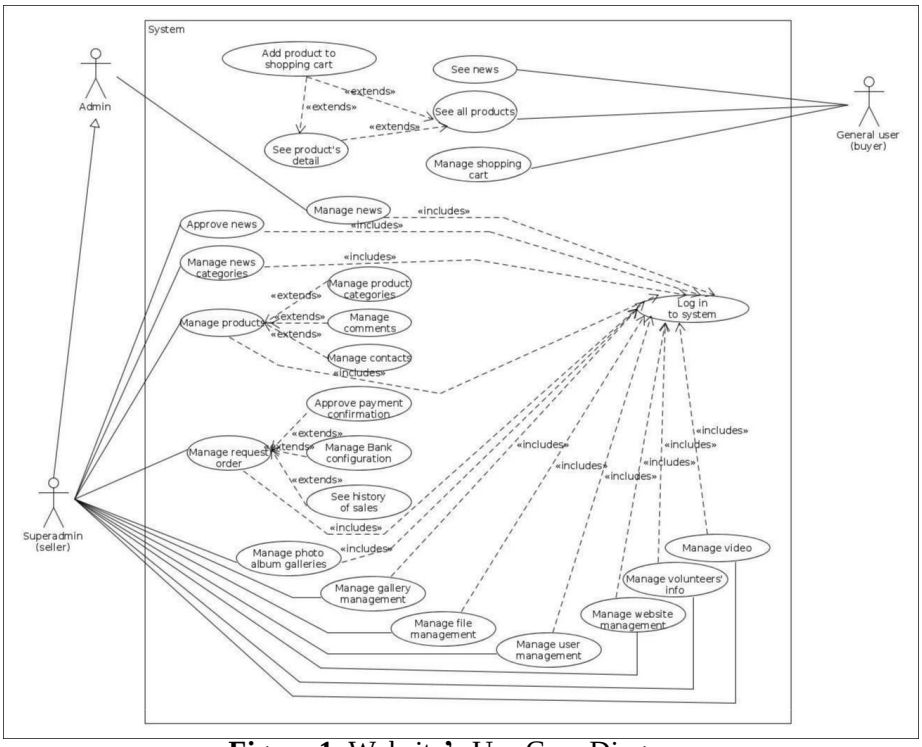

Figure 1. Website's Use Case Diagram

From Figure 1, there are 3 types of website users, namely superadmin, admin, and general user (buyer). The difference between superadmin and admin is that the admin can only manage the news that will be published on the website, with the approval of the superadmin first. And superadmin can manage all master data that is processed in the website.

4.2. Planning

The modeling of website design begins with creating an architectural design that describes the static aspects of the system using class diagrams. The classes in this design are taken from the definition of the use case diagram regarding what classes must be in for achieving the function described in each use case.

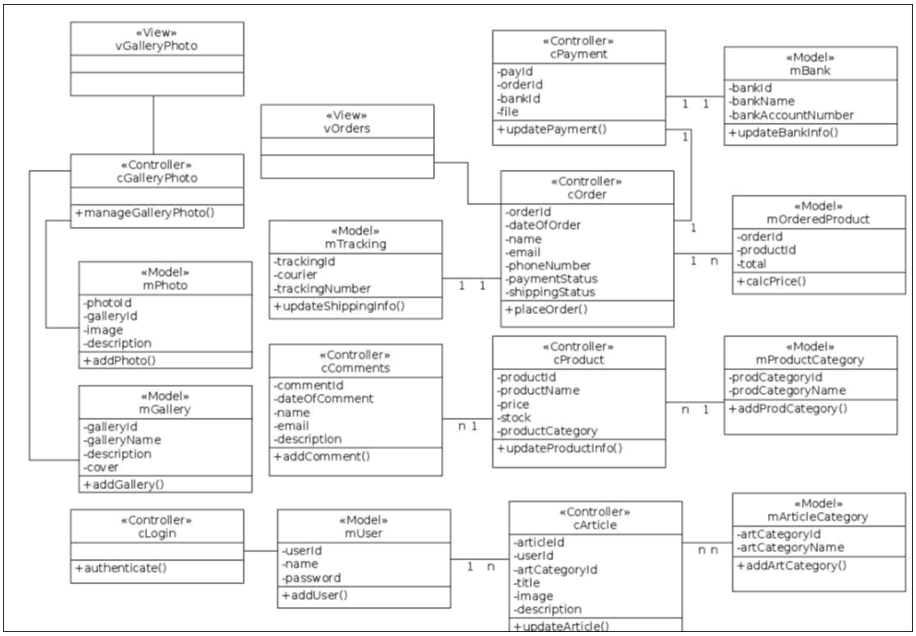

Figure 2. Class Diagrams Generated at the Early Phase of Planning

In Figure 2, the resulting diagram class corresponds to the objects contained on the website, this is intended to facilitate the creation of program codes that use object-oriented approaches. The next design that is carried out is the making of a design that describes the dynamic aspects of the website. The diagram used is an activity diagram that can describe the behavior of the system in achieving its functionality.

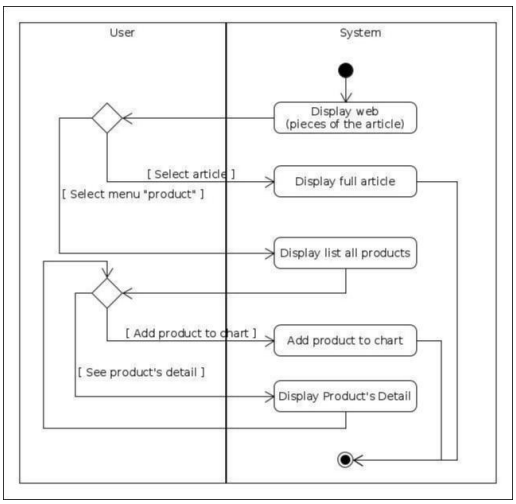

Figure 3. Activity Diagram for External User (Buyer)

Ideally, the activity diagram will describe the system behavior for each use case in the use case diagram. But in this study, some activity diagrams will be displayed which are considered quite representative in describing the main activities of the system as a whole. Figure 3 is an activity diagram that describes the behavior of the system in generating the functionality that the user needs. In Figure 1, the use case that is connected to an outside user (buyer) is a use case that relates to the needs of the buyer in viewing news, products, and adding products to the shopping cart. So Figure 3 shows the series of activities needed to achieve the use case.

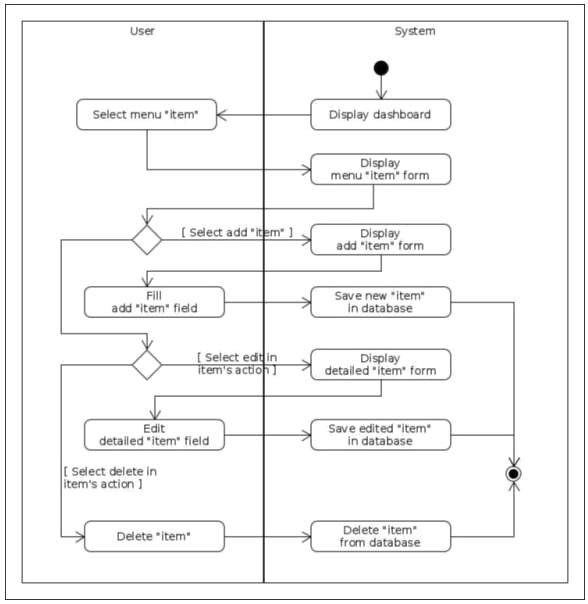

Figure 4. Activity Diagram to Manage "items"

In Figure 1, there are many use cases that contain various data management processed in websites. What is meant by managing here is the ability of the admin to add, change, and delete data that generally have the same set of activities and is only distinguished by the data name. Figure 4 states the data with the term "item". So if the data processed is news, then the added "item" in question can be replaced with **"**news**"**.

4.3. Development

The result of this stage is a website written using PHP and JavaScript programming languages, MySQL databases, and using Bootstrap and Laravel frameworks. Figure 5 shows the website start page that will be displayed directly when the website is accessed. On the home page, news in pieces will be displayed which are sorted according to the time the news is approved.

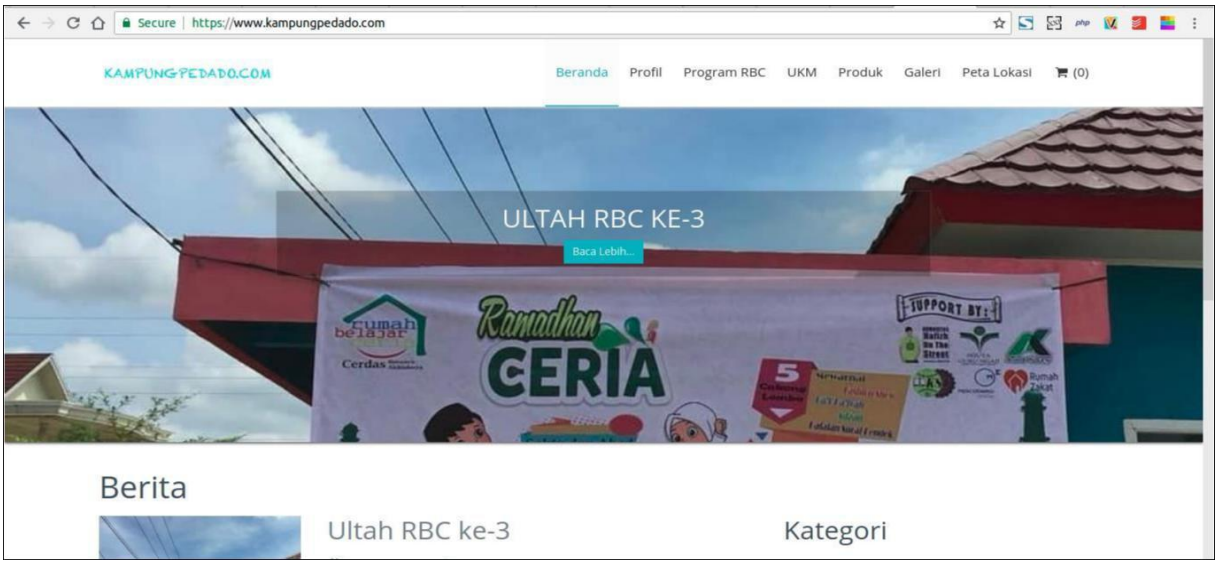

Figure 5. Initial Website Display

Buyers can see the product choices available on the Products menu. The buyer's choice is automatically added to the shopping cart (Figure 6), and shopping cart processing means the calculation of the total shopping is added to the shipping costs that must be transferred and choose the

Bank to be used. The detailed transaction information sent to the buyer's email, including the function to confirm payment or to download transaction invoice (Figure 7).

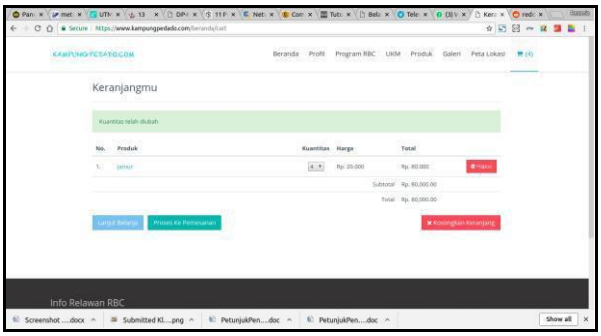

Figure 6. Shopping Cart Page

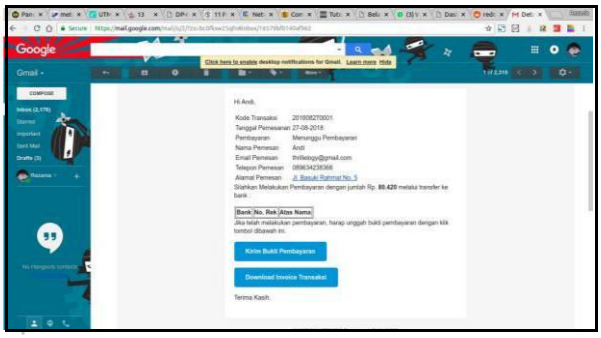

Figure 7. Detailed Transaction Information Sent to Buyers' Email

Figure 8 displays the dashboard page and menu options available to the admin. Every order made by the buyer will appear on the Order Request menu with the payment status "Not yet paid" (Figure 9). Admin verifies the payment that has been made by the buyer in the Payment Confirmation menu and automatically the payment status on the order request changes to "Complete".

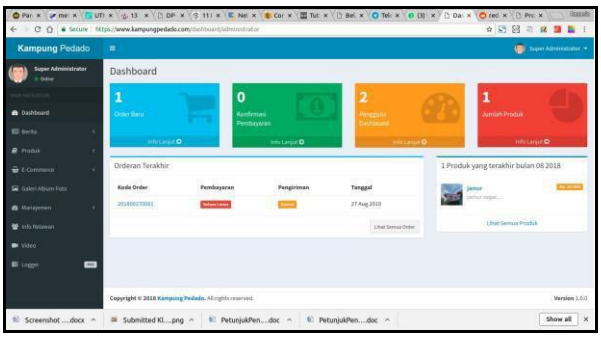

Figure 8. Superadmin's Dashboard

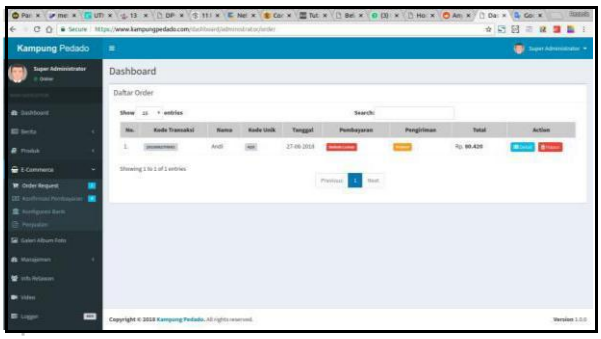

Figure 9. Order Request Page

4.4. Evaluation and risk analysis

In the initial stages of evaluation, testing of websites that have been built using the blackbox method is carried out. The final test results indicate the components contained on the website are in accordance with their functions. The next stage, namely risk analysis and evaluation to obtain consumer feedback has not been carried out in this study.

5. Conclusions

From the results of the study, it can be concluded that:

- The promotional website built can display profiles of Pedado Village, SMEs, and other activities found in Pedado Village.
- In addition to being able to be used to display information about SME products, the website can also be used for online buying and selling of SME products.
- The buyer does not have an account to log in to the system. The progress of the orders made will be automatically inputted through the buyer's email.
- The website that has been tested has been published on the Internet and can be accessed at https://kampungpedado.com.

The suggestions for continuation and development of research results are:

- Research can proceed to the next stage, which is an evaluation aimed at website users to obtain the results of user feedback on the website that is used as a basis for continuing the next iteration. Evaluation can be done using the Kano method or other suitable methods.
- For the development of research results, promotional websites can be developed again by applying the concept of the marketplace, where each SME has their own account and can handle the sale of their own products. Buyers can also have their own account so they can see the history of their purchases.

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